

SPECIFICATION

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MULTIPLE USE BOX WITH SECURITY FEATURE AND METHODS FOR USING THE SAME

Background of Invention

[0001] Technical Field of Invention. The invention relates to boxes/containers and more particularly shipping or storage boxes/containers that can be sealingly closed at least twice to contain items and that can indicate whether someone has tampered with the box/container after each closure.

[0002] *Background* A re-useable box allows one to cost effectively ship items by amortizing the cost of the box over the first and subsequent shipments. For businesses that frequently ship items such as mail-order retailers or wholesalers, re-using boxes can produce significant savings. The typical method of re-using a box involves applying tape from a roll of a tape to two or more top flaps to close the box. The top flaps taped together are often the same top flaps used to close the box during a previous shipment. Thus, when the box is closed for a second or subsequent time, the tape from the first closure is usually underneath the tape used for the second or subsequent closure.

[0003] Unfortunately, a box closed in such a manner can easily be tampered with or completely opened by anyone before the intended recipient receives the box. For persons or businesses that ship many items in a single box, Amazon.com for example, concern about persons tampering with or opening the box is heightened. Because more than one item is shipped in one box, a person can remove one or more of the items from the box, yet leave other items in the box without the intended recipient ever realizing it. The person tampering with the box simply has to cut the tape to open the box and then re-tape the box closed in the same manner that the

original shipper taped the box closed. Thus the intended recipient of the items in the box can't readily determine if he/she has received all of the items originally shipped.

[0004] Re-using a box by applying tape from a roll of tape to two top flaps provides additional problems. Sometimes the roll of tape is misplaced and the box can't be securely closed without having to search for tape. Also, applying the tape can be messy if one cannot keep the box appropriately closed while he/she applies the tape or does not line up the tape with the flaps of the box correctly before the tape is applied. Furthermore, opening a box closed by a tape roll can be dangerous because one often needs a knife or other type of sharp edge to cut the tape, or such actions can damage the enclosed items. All of these problems create avoidable work or danger for a person closing a box with tape roll or opening a taped box, and can significantly reduce a person's work efficiency if such closing and subsequent closings are repeated over a period of time.

[0005] Thus there is a need for a box that can be used two or more times to securely ship and/or store many items and that can indicate whether someone has tampered with or completely opened the box after each closure of the box.

Summary of Invention

[0006] The invention is directed to boxes, blanks and methods that indicate whether the box has been tampered with or completely opened when it is used to ship or store items more than once. The invention also provides boxes, blanks and methods that are easier, quicker and safer to securely close before shipping or storing items, and to open when desired.

[0007] The box comprises a plurality of sides connected to each other to define an interior where items are contained during shipment or storage. At least two top flaps extend from respective sides and are pivoted toward the interior before closing the box. At least two top flaps each include an attachment strip and tear strip.

[0008] To securely close the box more than once, an attachment strip attaches to another top flap after one or more top flaps have been pivoted toward the interior, or attaches to a side depending upon the configuration of the box. To open the box, the tear strip is removed from the top flap. If the box is to be reused, the second of the at least two

flaps having the attachment strip is the last to be pivoted toward the interior and the attachment strip attached to either another top flap, or to a side.

[0009] Because the tear strip cannot be re-attached to the top flap or a side without the intended recipient recognizing this, the box can provide a clear indication of any tampering with or opening of the box. Thus, the box discourages a third party from tampering with or opening the box.

[0010] [1] In another aspect, the invention provides blanks that are substantially flat and can easily be formed into the boxes so that in between uses the boxes can be easily flattened for economically storing or shipping them. The blank comprises a plurality of sections connected to each other and operable to form a box when pivoted relative to each other. At least two top flaps each extend from respective sides and can pivot relative to their respective sides. At least two of the top flaps include an attachment strip and tear strip as previously described in this section.

[0011] [2] In yet another aspect, the invention provides methods for securely closing the box and using the box more than once that are quick, easy and safe to execute. The methods to securely close the box comprise: moving two or more top flaps toward an interior of the box so that the last flap pivoted toward the interior includes an attachment strip and tear strip; then, attaching the attachment strip to the top flap previously pivoted toward the interior or to a side. The methods of using the box to ship or store items two or more times comprise: attaching an attachment strip on a first top flap of the box to another top flap or side to close the box; removing a tear strip from the first top flap to remove the attachment strip from the first top flap and open the box; attaching an attachment strip on a second top flap of the box to another top flap or side to close the box again.

Brief Description of Drawings

[0012] FIG. 1 is a perspective view of a box according to an embodiment of the invention;

[0013] FIG. 2 is a top view of a blank that can be formed into the box of FIG. 1 according to an embodiment of the invention;

[0014] FIG. 3 is a top view of the box of FIG. 1 before closing the box for the first time

showing two top flaps having attachment strips and tear strips according to an embodiment of the invention;

[0015] FIG. 4 is a perspective view of the box of FIG. 3 showing two top flaps pivoted toward the interior of the box before closing the box according to an embodiment of the invention;

[0016] FIG. 5 is a perspective view of the box of FIG. 4 showing the removal of a tear strip to open the box according to an embodiment of the invention;

[0017] FIG. 6 is a perspective view of the box of FIG. 5 showing the box open according to an embodiment of the invention;

[0018] FIG. 7 is a perspective view of the box of FIG. 6 showing two flaps, different than the two flaps shown in FIG. 4, pivoted toward the interior of the box before closing the box a second time according to an embodiment of the invention;

[0019] FIG. 8 is a perspective view of the box of FIG. 7 closed for the second time according to an embodiment of the invention;

[0020] FIG. 9 is a perspective view of the box of FIG. 8 showing the removal of a tear strip to open the box a second time according to an embodiment of the invention;

[0021] FIG. 10 is a top view of a box according to another embodiment of the invention, before closing the box for the first time showing four top flaps having attachment strips and tear strips;

[0022] FIG. 11 is a perspective view of the box of FIG. 10 showing two top flaps pivoted toward the interior of the box before closing the box according to an embodiment of the invention;

[0023] FIG. 12 is a perspective view of the box of FIG. 11 showing the removal of a tear strip to open the box after the box has been closed for the first time according to an embodiment of the invention;

[0024] FIG. 13 is a perspective view of the box of FIG. 12 showing a top flap pivoting away from an interior of the box to open the box according to an embodiment of the invention;

[0025] FIG. 14 is a perspective view of the box of FIG. 13 closed for a second time by attaching the same two top flaps together that were attached together to close the box for the first time in FIG. 12;

[0026] FIG. 15 is a perspective view of the box of FIG. 14 showing the same two top flaps that were attached to together to close the box in FIGS. 12 and 14 pivoted toward the interior of the box before closing the box for a third time, according to an embodiment of the invention.

[0027]

[0028]

Detailed Description

[0029] [1] All terms used herein, including those specifically described below in this section, are used in accordance with their ordinary meanings unless the context or definition indicates otherwise. Also, unless indicated otherwise, except within the claims, the use of "or" includes "and" and vice-versa. Non-limiting terms are not to be construed as limiting unless expressly stated (for example, "including" and "comprising" mean "including without limitation" unless expressly stated otherwise).

[0030] [2] The invention provides boxes and methods that indicate whether a third party has tampered or completely opened the box when it is used to ship or store items a second or more times. In addition, the invention provides blanks and methods for easily forming the boxes so that in between uses the boxes can be easily flattened for economically storing or shipping them. The boxes include at least three top flaps that pivot toward an interior region of the box to close the box. At least two of the top flaps include an attachment strip that attaches to another top flap to keep the box closed, and a tear strip that releases the attachment strip from its respective top flap when it is removed from the top flap. Thus, one can quickly and easily close a box for shipping or storing by attaching an attachment strip on one of the top flaps to another top flap and can quickly, easily and safely open a closed box by removing a respective tear strip. Then, when one wants to use the box again, one simply closes the box by attaching an attachment strip of a second top flap to another top flap and opens the box by removing the tear strip from the second top flap.

[0031] [3] Rethe box by closing and opening the box in this manner provides more security to the items contained inside the box than the common method of rethe box. Because the tear strip cannot be reto the top flap without the intended recipient recognizing this, the box can provide a clear indication of any tampering with or opening of the box. Thus, the box discourages a third party from tampering with or opening the box.

[0032] [4] FIGS. 1 and 3 9 illustrate a box with two attachment strips and tear strips according to an embodiment of the invention. FIG. 2 illustrates a panel that can be easily formed into the box in FIGS. 1 and 3 9 according to an embodiment of the invention. And FIGS. 10 15 illustrate a box with four attachment strips and tear strips according to an embodiment of the invention.

[0033] [5] FIG. 1 is a perspective view of a box 20 according to an embodiment of the invention. In this and certain other embodiments, the box 20 includes four sides 22a 22d (22a and 22d shown). Four top flaps 24a 24c (24a and 24c shown) extend from respective sides 22a 22d, and the top flaps 24c and 24d each include an attachment strip 26c and 26d, and a tear strip 28c and 28d, respectively. To close the box 20, the top flaps 24a 24d are pivoted toward an interior 29 of the box 20 and the attachment strip 26c adheres to the top flap 24a. The top flaps 24b and 24d are pivoted first but the attachment strip 26d does not adhere to the top flap 24b. Consequently, the attachment strip 26d is available to adhere to the top flap 24b to close the box 20 a second or subsequent time. If, however, a second or subsequent use is not desired, then the attachment strip 26d can also attach to the top flap 24b.

[0034] [6] Still referring to FIG. 1, the box 20 can be made of any desirable material such as cardboard, corrugated cardboard, particle board, plastic, resilient rubber, or any other desired material, and the box 20 can be formed by any desired conventional technique. For example, the box 20 can be formed by folding the panel 30 shown and discussed in greater detail in conjunction with FIG. 2, and then gluing, stitching, mechanically fastening, or fastening by any desired fastening technique the side 22a to the side 22d.

[0035] [7] Still referring to FIG. 1, the attachment strips 26c and 26d can be made of any desired adhesive or composite of any adhesive and any other desired material. For

example, the attachment strip 26c and 26d can be double sided tape with one side adhering to the top flap 24c or 24d, respectively, and a film adhering to the other side that, before attaching the attachment strip to another top flap to close the box 20, must be peeled away. In other embodiments, the attachment strip 26c and 26d can be made of any water or other chemically activated adhesive.

[0036] [8] Still referring to FIG. 1, the tear strips 28c and 28d can be made by any desired technique that allows the tear strips 28c and 28d to be easily remove from the top flaps 24c and 24d and yet still retain the respective attachment strips 26c and 26d to the respective top flaps 24c and 24d when the tears strips are not removed. For example, the tear strips 28c and 28d are typically made by perforating a section of the respective top flaps 24c and 24d. In other embodiments, the tear strips 28c and 28d can be a cord or thread that loosely stitches the attachment strip 26c and 26d to the top flap 24c and 24d such that when the cord or thread is pulled the stitching unravels and the attachment strips 26c and 26d are removed from their respective top flaps 24c and 24d.

[0037] [9] Although the box in FIG. 1 is shown and described as a square or rectangular box, the box 20 can have any desired number of sides such as three, five or six. Furthermore, although the sides 22a 22d are shown or described as each having a top flap extending from them, this is not necessary. One or more of the sides may not have a top flap extending from it. In addition, although the top flaps 24c and 24d are shown and described including an attachment and tear strip the attachment and tear strips can be included on any other combination of the top flaps 24a 24b. For example the top flaps 24a and 24b or the top flaps 24a and 24c can each include an attachment strip and tear strip.

[0038] [10] FIG. 2 is a top view of a blank 30 that can be easily formed into the box 20 of FIG. 1 according to an embodiment of the invention. In this and certain other embodiments, the blank 30 includes a plurality of sections 32a 32d that can be connected to each other by any conventional technique such as forming them together so that they are integrally connected to each other or fastening them with stitches, conventional adhesive, staples, or any other desired technique. More specifically, a first section 32a is connected to a second section 32b that is connected

to a third section 32c that is connected to a fourth section 32d. Top flaps 24a 24d extend from each section 32a 32d, respectively, and can be integral with their respective sections 32a 32d or fastened as described elsewhere herein to permit the flaps 24a 24d to be pivoted relative to their respective sections 32a 32d. Thus, the sections 32a 32d respectively correspond to the sides 22a 22d of the box 20 in FIG. 1.

[0039] [11] Still referring to FIG. 2 in this and certain other embodiments the top flaps 24c and 24d each include an attachment strip 26c and 26d, respectively, that can be located anywhere as desired. For example, the attachment strips 26c and 26d can be located along a distal end 34c and 34d, respectively, and extend the width of the top flap 24c and 24d. In other embodiments, the attachment strips 26c and 26d can be located in the middle of the top flaps 24c and 24d and can extend diagonally across the top flaps 24c and 24d. Or the attachment strips 26c and 26d can be located anywhere on the top flaps 24c and 24d as desired and can extend across all or part of the top flaps 24c and 24d as desired. Furthermore, in other embodiments, the attachment strips 26c and 26d can include more than more than one smaller strips located anywhere on the top flaps 24c and 24d as desired.

[0040] [12] Still referring to FIG. 2, in this and certain other embodiments, the top flaps 24c and 24d each include a tear strip 28c and 28d, respectively, that removes a respective attachment strip 26c or 26d from one of the respective flaps 24c or 24d when the tear strip 28c or 28d is removed from one of the respective flaps 24c and 24d. Thus, the tear strips 28c and 28d can be located on the top flaps 24c and 24d anywhere as desired as long as the tear strips 28c and 28d are between respective attachment strips 26c and 26d and respective sections 32c and 32d. For example, in this and certain other embodiments, the tear strips 28c and 28d are located adjacent one of the respective attachment strips 26c and 26d and also extend the width of one of the respective top flaps 24c and 24d. In other embodiments, the tear strips 28c and 28d can include more than one smaller strips located anywhere on the flaps 24c and 24d as desired that allows the removal of one of the respective attachment strips 26c and 26d from one of the respective top flaps 24c and 24d when the smaller tears strips are removed from one of the respective top flaps 24c and 24d.

[0041]

[13] Although the top flaps 24c and 24d of the blank 30 are each shown and

discussed having one attachment strip 26c or 26d and one tear strip 28c or 28d, respectively, at least one of the top flaps 24c and 24d can include more than one attachment strip and tear strip. This allows the box 20, once formed, to be closed and opened more than once by attaching the same two top flaps together. Thus, the box 20 can be opened and closed more than two times even though only two top flaps include attachment strips and tear strips. For example, at least one of the top flaps 24c and 24d can include an attachment strip located in the middle of the top flap 24c or 24d, another attachment strip located at the distal end 34c or 34d of the top flap 24c or 24d, a tear strip located between the two attachment strips and another tear strip located between the middle attachment strip and the section 32c or 32d.

Furthermore, at least one of the top flaps 24c and 24d can include any combination of one or more attachment strips and one or more tear strips. For example, at least one of the top flaps 24c and 24d can include two attachment strips as described above and one tear strip located between the middle attachment strip and the section 32c or 32d.

[0042] [14] FIGS 3 8 illustrate how one closes and opens the box 20 in FIG. 1 more than once according to an embodiment of the invention. FIGS 3 8 also illustrate how the box 20 provides security to items shipped or stored in the box during a second or subsequent use by indicating whether a third party has tampered with or opened the box 20. FIGS. 3 and 4 illustrate how the box 20 is initially closed. FIG. 5 illustrates how the box 20 is opened after being initially closed. FIGS. 6, 7 and 8 illustrate how the box 20 is closed for a second or subsequent time. And FIG. 9 illustrates how the box 20 is opened for a second or subsequent time.

[0043] [15] Referring to FIGS. 3 5, in this and certain other embodiments, initially closing the box 20 involves pivoting the top flaps 24a 24c toward the interior 29 (FIG. 3). First, one pivots the top flaps 24b and 24d toward the interior 29 as shown in FIG. 4. These top flaps 24b and 24d are not attached to each other but simply help support the other top flaps 24a and 24c when they are attached to each other and help retain items (not shown) in the interior 29 during shipping. But, as discussed elsewhere herein, these top flaps 24b and 24d can also be attached to each other. Next, one pivots a third top flap 24a followed by a first top flap 24c toward the interior 29 and attaches the attachment strip 26c to the third top flap 24a to close the box 20 as

shown in FIG. 5. Thus, the box 20 can be easily and quickly closed without requiring a roll of tape.

[0044] [16] Referring to FIG. 5, in this and certain other embodiments, the box 20 is opened by removing the tear strip 28c away from the top flap 24c. Consequently, the attachment strip 26c and the portion of the top flap 24c where the attachment strip 26c is located remain attached to the top flap 24a, and the other portion of the top flap 24c can be pivoted away from the interior 29 (FIG. 3). Thus, one can open the box 20 quickly, easily and safely because a knife or sharp edge is not required.

[0045] [17] Referring to FIGS. 6 8, the box 20 can be closed for a second or subsequent time. In this and certain other embodiments one first pivots the top flaps 24a and 24c toward the interior 29 as shown in FIG. 7. Next, one pivots a fourth top flap 24b followed by a second top flap 24d and attaches the attachment strip 26d to the fourth top flap 24b to close the box 20 as shown in FIG. 8. Thus one can re-use the box 20 to ship or store items and still provide security to the items because the box 20 appears to a third party to be closed for the first time.

[0046] [18] Referring to FIG. 9, the box 20 can be opened a second or subsequent time. In this and certain other embodiments the box 20 is opened as discussed elsewhere herein in conjunction with FIG. 5 except one removes the tear strip 28d from the top flap 24d instead of removing the tear strip 28c from the top flap 24c.

[0047] [19] Referring to FIGS. 3 9, although the second or subsequent use is shown and described as closing the box by attaching an attachment strip on the second top flap 24d to the fourth top flap 24b, the second top flap 24d can be attached to the third flap 24a. Thus, the box 20 can include three top flaps 24a 24c instead of four top flaps 24a 24d.

[0048] [20] FIGS. 10 15 illustrate a box 40 according to another embodiment of the invention. FIGS. 10 15 also illustrate how one opens and closes the box 40 four times according to another embodiment of the invention. In this and certain other embodiments, the process of opening and closing the box 40 each time is similar to the process discussed and shown in conjunction with FIGS. 3 9. But the box 40 includes top flaps 42a and 42b that also each include an attachment strip 26a and

26b, respectively, and a tear strip 28a and 28b, respectively. Furthermore, these top flaps 42a and 42b correspond to the top flaps 24a and 24b of box 20 in FIGS. 1-9.

[0049] [21] Although the box has been described in considerable detail with reference to certain embodiments for purposes of illustration, other embodiments are possible. Therefore the spirit and scope of the appended claims should not be limited to the above description of the embodiments; the present invention includes suitable modifications as well as all permutations and combinations of the subject matter set forth herein.

FIG. 10 is a perspective view of a box 100 in an open position, showing a top flap 102, a side flap 104, and a bottom flap 106. The box 100 is formed from a sheet of material 108. The top flap 102 is hinged to the side flap 104, and the side flap 104 is hinged to the bottom flap 106. The box 100 is shown in a perspective view, and the flaps 102, 104, and 106 are shown in a partially open position. The sheet of material 108 is shown with dashed lines indicating the fold lines. The box 100 is shown in a perspective view, and the flaps 102, 104, and 106 are shown in a partially open position. The sheet of material 108 is shown with dashed lines indicating the fold lines.